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10/566,538	05/20/2006	Yoshihiro Hirata	KOD190B.001APC	5853

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KNOBBE MARTENS OLSON & BEAR LLP
2040 MAIN STREET
FOURTEENTH FLOOR
IRVINE, CA 92614

EXAMINER	
RALIS, STEPHEN J	
ART UNIT	PAPER NUMBER
3742	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	04/10/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

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jcartee@kmob.com
eOAPilot@kmob.com

Office Action Summary	Application No.	Applicant(s)	
	10/566,538	HIRATA ET AL.	
	Examiner	Art Unit	
	Stephen J. Ralis	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5 and 8-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5 and 8-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 January 2006 and 12 January 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☒ Other: *See Continuation Sheet*.

DETAILED ACTION

Response to Amendment

1. Applicant is notified of receipt and acknowledgement, on 12 January 2007, of the amendments to Application No. 10/566,538, filed on 09 July 2004.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-5, 8-10 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto (Japanese Publication No. 2002-291517 A) in view of Okumoto et al. (U.S. Patent No. 6,173,718) and Van Dyck et al. (U.S. Patent No. 4,101,757).

5. Sugimoto discloses a hair iron of V-shaped, hair-sandwiching type, comprising a pair of hair-sandwiching arms which are pivoted and openably/closably connected to each other (see Figures 1, 3, 5, 7), each hair-sandwiching arm comprising: a heat-source plate and a heating plate which receives heat from the heat-source plate (heater 7 nested in heat plate 5; Abstract; paragraphs 11-21), said heating plate facing another heating plate of the other hair-sandwiching arm, thereby sandwiching hairs when the hair-sandwiching arms are closed (hair iron; see Figure 1, 3, 5, 7); a pair of right and left shielding members with respect to a longitudinal axis of the hair-sandwiching arm, said right and left shielding members (grasping members "a", "b"; see Figures 1, 3, 5, 7) having respective inner peripheries attached to each other and respective outer peripheries connected to right and left connecting portions of the heating plate, thereby forming a void space enclosed by the right and left shielding members and the heating plate, wherein the heat-source plate is placed inside the void space (see Figures 1, 3, 5, 7); tapered portions are provided in a base, on the void space side, of each heating plate forming gaps/grooves (see lateral portion 9 with radial border 10; Abstract; see Figures 1, 3, 5, 7); a biasing member (spring 3) provided at a pivot where the right and left hair-sandwiching arms are pivoted, said biasing member urging the right and left hair-sandwiching arms to open (spring 3 and biasing member 4).

The claims differ from Sugimoto in calling for the heat-source plates to be temperature adjustable.

However, a temperature adjustable heat-source plate in V-shaped hair irons is known in the art. Okumoto et al., for example, teach a V-shaped hair styling iron

comprising a temperature adjustment dial, controller and temperature sensor proximal to the heater (H) to allow a user to select a desired temperature within the range of 60-180°C (column 5, line 64 – column 6, line 15), thereby providing a more versatile and easy to use hair styling iron. In view of Okumoto et al., it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide temperature adjustment dial, controller and temperature sensor proximal to the heater to allow a user to select a desired temperature within the range, thereby providing a more versatile and easy to use hair styling iron.

The Sugimoto-Okumoto V-shaped hair iron combination discloses all of the limitations, as described above, except for gaskets fitted between the right shielding member and the right connecting portion of the heating plate and between the left shielding member and the left connecting portion of the heating plate, respectively, for improving steam cutoff property of the void space; a center gasket placed between the inner peripheries of the hair-sandwiching arms; and a temperature controller being placed in the void space.

However, hand irons with sealing members in the peripheries with temperature controllers within the void provided within the assembly is known in the art. Van Dyck et al., for example, teach a thermostat (72) and heating wire (70) provided within the void/tubular core (69) of heating element (12) (column 4, line 66 –column 5, line 4) to provide a temperature controller in close proximity to the heating apparatus, thereby providing a more accurate regulation of the temperature of the apparatus. Van Dyck et al. further explicitly teach gaskets (rings 76) of high temperature moisture resistant

material, such as silicone rubber, to protect the elements within the heating portion from short circuits and moisture (column 5, lines 7-15), thereby increasing the operational longevity of the hair heating apparatus. Therefore in view of Van Dyck et al., it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Sugimoto-Okumoto V-shaped hair iron combination with the temperature controller in the void of the heating apparatus of Van Dyck et al. to provide a temperature controller in close proximity to the heating apparatus, thereby providing a more accurate regulation of the temperature of the apparatus. It would have further been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Sugimoto-Okumoto V-shaped hair iron combination with the gaskets teaching of Van Dyck et al. to protect the elements within the heating portion from short circuits and moisture, thereby increasing the operational longevity of the hair heating apparatus.

With respect to the limitation of a center gasket being placed between the inner peripheries of the hair-sandwiching arm, Van Dyck et al. explicitly teach the usage of gaskets to reduce the potential of short circuits and moisture damage, thereby increasing the operational longevity of the hair heating apparatus. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the Okumoto et al. with an additional center gasket placed between the inner peripheries of the hair-sandwiching arm, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art.

With respect to the limitations of claims 13 and 14 and the right and left shielding members each having convex parts inserted in the respective gaps and engaged with the gaps'/grooves' tapered portions, Sugimoto explicitly discloses a gap/groove being formed in heater plate 5 with the shielding member (grasping members "a", "b") having a convex part or "peristome" (11) inserted into the respective gaps/grooves (see figures 1, 3, 5, 7).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sugimoto (Japanese Publication No. 2002-291517 A) in view of Okumoto et al. (U.S. Patent No. 6,173,718) and Van Dyck et al. (U.S. Patent No. 4,101,757) as applied to claim 5 above, and further in view of Thompson et al. (U.S. Patent No. 5,783,800).

The Sugimoto-Okumoto-Van Dyck hair iron combination discloses all of the limitations, as described in claim 5 above, except for a temperature display placed on the right and left shielding members of one of the hair-sandwiching arms opposite to the heating plate.

However, placing a temperature display on the right and left shielding members of one of the hair-sandwiching arms opposite to the heating plate, as described by Thompson et al., is known in the art. Thompson et al. teach a hair iron comprising a temperature display (suitable temperature indicators; column 3, lines 39-43) on one of the sandwiching arms opposite the heating plate (can be provided on the members 12 and 14; column 3, lines 39-43) to provide the operator knowledge of when the temperature of the various portions of the apparatus have reached a desired

temperature, thereby providing a safer and more user friendly heated hair iron. Thompson et al. further teach a thermostat control being provided in the sandwiching arms opposite the heating plate (members 12, 14; column 3, lines 42-44). It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the sandwiching arms opposite the heating plate of the Sugimoto-Okumoto-Van Dyck hair iron combination with the temperature display in the sandwiching arms opposite the heating plate of Thompson et al. to provide the operator knowledge of when the temperature of the various portions of the apparatus have reached a desired temperature, thereby providing a safer and more user friendly heated hair iron.

Response to Arguments

7. Examiner accepts amendments to the Drawings, Specification and Claims and respectfully withdraws the objections, accordingly.

8. Applicant's arguments, see pagers 11-13, filed 12 January 2007, with respect to the rejection(s) of claim(s) 1-11 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Sugimoto (Japanese Publication No. 2002-291517 A).

Sugimoto clearly discloses the base structure of the heating plate (5) having a tapered portion forming gaps/grooves (lateral portion 9 with radial border 10) in the outer periphery thereof that intersect with the convex "peristome" (11).

Okumoto et al. is cited for the inclusion of a temperature adjustable structure and functionality thereof to allow a user to select a desired temperature within the range, thereby providing a more versatile and easy to use hair styling iron.

Van Dyck et al. is cited for the teaching of providing gaskets of high temperature moisture resistant material, such as silicone rubber, to protect the elements within the heating portion from short circuits and moisture (column 5, lines 7-15), thereby increasing the operational longevity of the hair heating apparatus.

9. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, there is some teaching, suggestion, or motivation to do so found either in the references themselves.

Van Dyck et al. clearly teach a hair styling iron with a temperature controller in close proximity to the heating apparatus, to provide a more accurate regulation of the temperature of the apparatus. Van Dyck et al. further explicitly teach gaskets (rings 76) of high temperature moisture resistant material, such as silicone rubber, to protect the elements within the heating portion from short circuits and moisture (column 5, lines 7-15), thereby increasing the operational longevity of the hair heating apparatus.

Therefore, the examiner maintains that Van Dyck et al. is combinable with Okumoto et al. and also the newly cited prior art reference of Sugimoto.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Ralis whose telephone number is 571-272-6227. The examiner can normally be reached on Monday - Friday, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Leung can be reached on 571-272-4782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Stephen J Ralis
Examiner
Art Unit 3742

SJR
March 27, 2007

PHILIP H. LEUNG
Acting S. PRIMARY EXAMINER
ART UNIT 3742

Continuation of Attachment(s) 6). Other: Machine generated english translation of JP 2002-291517 A.

PATENT ABSTRACTS OF JAPAN

(11)Publication number : **2002-291517**

(43)Date of publication of application : **08.10.2002**

(51)Int.Cl. **A45D 1/00**

A45D 1/04

(21)Application number : **2001-100898**

(22)Date of filing : **30.03.2001**

(71)Applicant : **TI PUROSU:KK**

(72)Inventor : **SUGIMOTO YOICHI**

(54) **HAIR IRON**

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a hair iron which has a pair of grip members whose base ends are hinged via a shaft with a spring to allow the pair to be freely opened or closed, and also has, in the distal end to be most opened, a pair of heat plates facing each other that are held so elastically that their surfaces can become parallel to each other when holding hair in between.

SOLUTION: In this hair iron, which is provided with a grip member pair, formed over a hollow in the center, whose base end is coupled via a shaft 2 containing a spring 3 in a way that it can be freely opened or closed, and an opening part 6 in the distal end equipping with a pair of heat plates 5 facing with each other that are both heated by a heater 7 respectively, outer edges 10 on the side surface 9 of one of the heat plates 5 are engaged with the back side of opening edges 11 of the opening part 6 so as to form an appropriate clearance (c) from the opening part 6, and a plate spring 8 is provided on the bottom of the opening 6 to energize the heat plate 5 upward so that the heat plate 5 can be made movable within the range of the clearance (c).

LEGAL STATUS

[Date of request for examination] 10.12.2002

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or

application converted registration]

[Date of final disposal for application]

[Patent number]	3618678
[Date of registration]	19.11.2004
[Number of appeal against examiner's decision of rejection]	
[Date of requesting appeal against examiner's decision of rejection]	
[Date of extinction of right]	

CLAIMS

[Claim(s)]

[Claim 1] By energization of the spring with which connected the base of the grasping member of a pair free [closing motion] with the shaft, and bearing was equipped, while always energizing the point of both the grasping member in the open direction mutually In the hair iron which equipped opening with which the point of both the grasping member formed in midair was equipped with the hot platen of each other which generates heat by energization of a heater, respectively face to face said hot platen The hair iron characterized by preparing the flat spring which turns and energizes this hot platen to a front-face side between the bases of opening while fitting in so that the radial border with which the lateral portion was equipped might be made to hang on the rear face of the peristome of said opening and proper path clearance might be made to form between openings.

[Claim 2] Said flat spring is a hair iron according to claim 1 characterized by being interposed between the base of opening of said point, and the rear face of said heater, and preparing so that said hot platen may be turned to a front-face side and may be energized through this heater.

[Claim 3] The radial border which equipped the inside surface part of said hot platen with said flat spring, and the bending section which fits in, It is extended forward and backward along the die-length direction from this bending section, and is constituted by the slant surface part which carries out a pressure welding to the base of said opening, respectively. Said heater The hair iron according to claim 1 characterized by being constituted so that it may be energized by the 2nd flat spring interposed between the ulnar margin with which the lateral portion of the above-mentioned hot platen was equipped and may stick with the above-mentioned hot platen.

[Claim 4] The **** pore with which while forms this grasping member and the point of said grasping member equipped the transverse plane of the point of a rate mold member, The **** pore with which the point transverse plane of the rate mold member of another side was equipped so that this screw-thread hole might be overlapped, The setscrew which inserts in a compound-screw pore, and the inner edge of a setscrew and the back plate with a **** hole to screw, The hair iron according to claim 1 characterized by

constituting so that it may have the push-in section holding this back plate, it may **** with the above-mentioned setscrew and the forward surface part of the point of the above-mentioned rate mold member may be mutually concluded to one by screwing with a hole.

DETAILED DESCRIPTION

[Detailed Description of the Invention]
[0001]
[Field of the Invention] This invention is characterized by making it make a hot platen hold elastically to the point of the grasping member of the pair mainly connected free [closing motion] with the shaft and the spring in the cosmetics salon etc. about the hair iron used for business use.
[0002]
[Description of the Prior Art] It has so that it may become mutually and facing each other about the hot platen which generates heat by energization of a heater to the opening circles with which the point of both the grasping member was equipped while energizing in the direction which always opens the point of both the grasping member mutually by energization of the spring with which connected the base of the grasping member of a pair free [closing motion with a shaft] as this kind of hair iron was shown in JP,2000-232911,A, and bearing was equipped.
[0003]
[Problem(s) to be Solved by the Invention] The conventional hair iron forms the margo inferior of the side face of a hot platen in a cross-section T typeface, and makes a heater support between ulnar margin, and he inserts it in the fitting slot which formed outside edges on both sides in the medial surface of opening, and was trying to make a hot platen support fixed to a grasping member, as shown in drawing 3 of the above-mentioned official report, and 4. Therefore, there was a fault that the include angle which closes a grasping member, and the include angle of the hot platen whose hair is pinched become equal, and become the inclination narrowly opened by the point side by the hand side, and it was difficult to parallel the field of the hot platen whose hair is pinched, and heating and pressurization tend to become unequal.
[0004] The technical problem which this invention tends to solve since it is such has the front face of a hot platen in making it hit hair almost equally, without asking the amount of the amount of the hair pinched ** it is not influenced by the include angle which closes a grasping member by making a hot platen hold elastically to a grasping member.
[0005]
[Means for Solving the Problem] By energization of the spring with which this invention connected the base of the grasping member of a pair free [closing motion] with the shaft in order to solve the above-mentioned technical problem, and bearing was equipped, while always energizing the point of both the grasping member in the open direction mutually In the hair iron which equipped opening with which the point of both the grasping member formed in midair was equipped with the hot platen of each other which generates heat by energization of a heater, respectively face to face said hot platen While fitting in so that the radial border with which the lateral portion was equipped may be made to hang on the rear face of the peristome of said opening and proper path clearance

may be made to form between openings The hair iron characterized by preparing the flat spring which turns and energizes this hot platen to a front-face side between the bases of opening is offered.
[0006] Make path clearance form to opening of a grasping member as mentioned above, and it equips with a hot platen. this invention hair iron it was made to make this hot platen energize to a front-face side by the flat spring interposed between the bases of opening Since it has the hot platen movable in the range of the above-mentioned path clearance, it is not influenced by the include angle which closes a grasping member. Moreover, according to the amount of the amount of the hair to pinch, the hot platen itself changes a posture, heating and pressurization to the hair which hair contacted and pinched become near equally on the whole front face, and the iron actuation prepared in a desired hair style becomes easy.
[0007] Since the special structure required for junction at a hot platen and a heater can be excluded according to invention of claim 2 interpose [claim] flat spring between the heaters which touch the opening base and hot platen of a point of a grasping member, and it was made to make a hot platen energize with a heater, the number of components and the trouble of assembly can be reduced and the cost cut of this kind of hair iron can be performed.
[0008] Moreover, the radial border which equipped the inside surface part of a hot platen with flat spring and the bending section which fits in, It is extended forward and backward along the die-length direction from this bending section, and the slant surface part which carries out a pressure welding to the base of said opening, respectively constitutes. For invention of claim 3 make the 2nd flat spring which interposed the heater between the ulnar margin with which the lateral portion of the above-mentioned hot platen was equipped energize, and it was made to stick with the above-mentioned hot platen The fitting location of the flat spring to a hot platen is shifted delicately forward and backward, and there is an advantage that the adjustment actuation in the case of adjusting the pressurization location to hair becomes easy.
[0009] Moreover, the setscrew which invention of claim 4 is ****ed at the point front of the rate mold member of another side, and is equipped with a pore so that it may **** at the front of the point of a rate mold member, it may have a pore and while forming a grasping member may overlap this screw-thread hole, and inserts in a compound-screw pore, It has the push-in section holding the back plate with a **** hole screwed in the inner edge of a setscrew, and the back plate of ******** of one rate mold member. By constituting so that it may **** with the above-mentioned setscrew and the forward surface part of the point of the above-mentioned rate mold member may be mutually concluded to one by screwing with a hole, association in the point of both the rates mold member is strengthened.
[0010]
[Example] The example of this invention is explained about a drawing below. A part of decomposition perspective view of an example 1 and drawing 2 drawing 1 a notching side elevation and drawing 3 Drawing of longitudinal section of opening and drawing 4 The exploded view for a point of a grasping member, <A HREF="/Tokujitu/tjitemdrw.ipdl?N0000=237&N0500=1 E_N/;>;=6>:>8///&N0001=405&N0552=9&N 0553= 000007" TARGET="tjitemdrw"> drawing 5 the decomposition perspective view of an example 2, and drawing 6 -- a part

of example 2 -- a notching side elevation and drawing 7 are drawings of longitudinal section of opening of an example 2.

[0011] The shaft which 1 inserts in the base (illustration right-hand side) of the grasping members 1 and 1 of a pair in a grasping member, inserts in 2 horizontally, and connects both the grasping member free [closing motion] in a Fig. same as the above, The spring of the coil form which it is equipped with 3 in bearing 4, and always energizes the point (illustration left-hand side) of both the grasping member in the open direction, The hot platen which 5 fits into the opening 6 prepared in the point of both the grasping member, respectively, and faces mutually, the heater which sticks 7 to the rear face of a hot platen 5, and heats a hot platen by energization, and 8 are flat spring which is interposed between the base of opening 6, and a hot platen 5, and always energizes a hot platen 5 to a front-face side.

[0012] The grasping member 1 is combined with one with three setscrews 15 which were made right and left along the die-length direction for 2 minutes and which divide, are formed by the mold members a and b, and are inserted from a side face, and the bolt nut 18 of a lot inserted in bearing 4. In addition, the ceramic heater is used for the heater 7 using the drawing material of the aluminum formed in the hot platen 5 in the shape of a sash.

[0013] In an example 1, as right and left on the back are equipped with the lateral portion 9 which formed the margo inferior in T typeface at spacing according to the width of face of a heater 7 as shown in drawing 1 and 3, the radial border 10 is made to hang on the background of the peristome 11 of opening 6 and it is shown in drawing 3 , a hot platen 5 makes proper path clearance (rise-and-fall allowances c) form between a rear face and the top face of opening 6, and fits in in opening 6.

[0014] The flat spring 8 which energizes this hot platen 5 has a part for the slant surface part which equipped the central part with the double width part corresponding to the width of face of a heater 7, and it had so that the base of opening 6 might be arrived at from between the ulnar margin 12 of a hot platen 5 forward and backward, as shown in drawing 1 . As shown in drawing 2 , the flat spring 8 of an example 1 intervenes between the base of opening 6, and the rear face of a heater 7, and it holds a heater 7 in a predetermined location while a hot platen 5 is turned to a front-face side and it energizes it.

[0015] In addition, as shown in drawing 4 , **** the point of the grasping member 1 of an example 1 at the front of the point of one rate mold member a (illustration left-hand side), and it is equipped with a pore 13. The setscrew 15 it was made to overlap this screw-thread hole 13 and which ****s, equips the point transverse plane of the rate mold member b of another side with a pore 14, and inserts in the compound-screw pores 13 and 14, The back plate 16 with a **** hole screwed in the inner edge of a setscrew 15 and the point of one rate mold member a are equipped with the push-in section 17 holding a back plate 16, and it is constituted so that it may **** with the above-mentioned setscrew 15, it may divide by screwing with hole 16' and the point of the mold members a and b may be mutually concluded to one.

[0016] Next, the example 2 of this invention is explained about a drawing. As shown in drawing 5 , and 6 and 7, the grasping member 1 of an example 2 is the almost same configuration as an example 1, some difference is in a hot platen 5 and flat spring 8, and flat spring 8 is interposed between the base of opening 6, and a hot platen 5. The point of

having made it make a hot platen 5 energizing directly, and the point of interposing 2nd another flat spring 19 of two sheets between a hot platen 5 and a heater 7 at a rhombus, and having been made to carry out the pressure welding of the heater 7 to a hot platen 5 have the difference in structure.

[0017] The above-mentioned hot platen 5 makes the radial border 10 with which the almost same location as said example 1 was equipped hang on the opening 6 of the grasping member 1, and as shown in drawing 7 , it forms path clearance (c) between openings 6. Moreover, this hot platen 5 is equipped with the step 20 which inserts a heater 7 in right and left of a medial surface, hangs the inside surface part 21 in the illustration lower part of a step 20 at reverse T typefaces, inserts the 2nd flat spring 19 of the above inside the inside surface part 21, and is making the heater 7 energize.

[0018] Moreover, the flat spring 8 of an example 2 consists of bending section 8a which fits into the radial border 22 of the inside surface part 21 of the above-mentioned hot platen 5, and slant surface part 8b are extended before and behind bending section 8a, and it was made to touch the base of opening 6, and as shown in drawing 6 and drawing 7 , it intervenes between the base of opening 6, and a hot platen 5, and as shown in drawing 5 , it is used so that a hot platen 5 may be made to energize directly.

[0019] Since the example 1 constituted as mentioned above made unnecessary special structure of holding a heater 7 and supported the heater 7 in the predetermined location by energization of flat spring 8, structure becomes easy and the cost cut of it is possible. Moreover, since the flat spring 8 equipped with bending section 8a can be made to be able to guide to the radial border 22 of the inside surface part 21 of a hot platen 5 and an example 2 can move it regardless of maintenance of a heater 7, it has the advantage that adjustment actuation in the case of wanting to move the pressure-welding location of a hot platen 5 and hair forward and backward can be easily performed compared with an example 1.

[0020] In addition, it cannot be overemphasized that the configuration of the grasping member 1, a hot platen 5, and flat spring 8 grade meets the summary of not only the mode of an example but this invention, and a design change can be suitably carried out on the occasion of operation of this invention. Moreover, it is arbitrary whether wearing of the flat spring 8 to a hot platen 5 is used as both grasping members 1 or it is made only one side.

[0021]

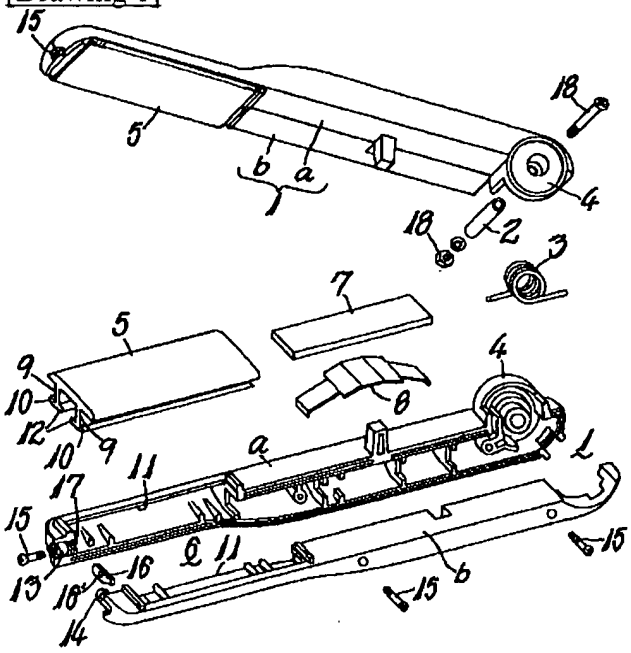
[Effect of the Invention] this invention hair iron it was made to make the hot platen which formed path clearance between openings as mentioned above, and carried out fitting to opening energize by flat spring from the inside Since it contacts so that an include angle may not be uniformly formed between the hand side at the time of pinching hair, and a tip side, but the thickness of hair may be accompanied and a hot platen may be mutually parallel, since it has the hot platen movable in the range of the above-mentioned path clearance There is effectiveness which was excellent practical -- it becomes easy to make a desired hair style compared with elegance conventionally [said].

DESCRIPTION OF DRAWINGS

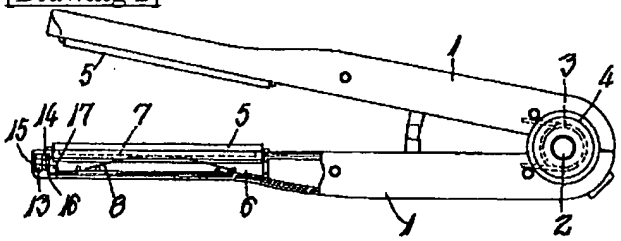
[Brief Description of the Drawings]
[Drawing 1] Drawing 1 is the decomposition perspective view of an example 1.
[Drawing 2] A part of drawing 2 is a notching side elevation.
[Drawing 3] Drawing 3 is drawing of longitudinal section of opening,
[Drawing 4] Drawing 4 is the exploded view for a point of a grasping member.
[Drawing 5] Drawing 5 is the decomposition perspective view of an example 2.
[Drawing 6] For drawing 6 , an example 2 is a notching side elevation a part.
[Drawing 7] Drawing 7 is drawing of longitudinal section of opening of an example 2.
[Description of Notations]
1 Grasping Member (a, B Rate Mold Member)
2 Shaft
3 Spring
4 Bearing
5 Hot Platen
6 Opening
7 Heater
8 Flat Spring (8a Bending Section, 8B Slant Surface Part)
9 Lateral Portion
10 Radial Border
11 Peristome
12 Ulnar Margin
13 14 **** pore
15 setscrews
16 Back Plate (16' **** Hole)
17 Push-in Section
18 Bolt Nut
19 2nd Flat Spring
20 Step
21 Inside Surface Part
22 Radial Border
c Path clearance

DRAWINGS

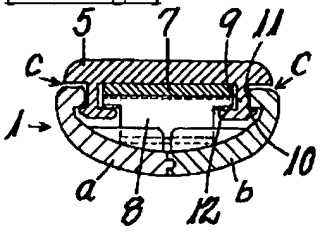
[Drawing 1]



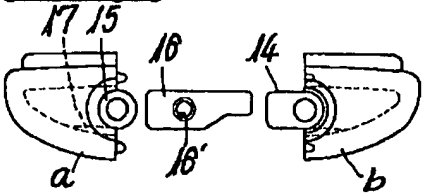
[Drawing 2]



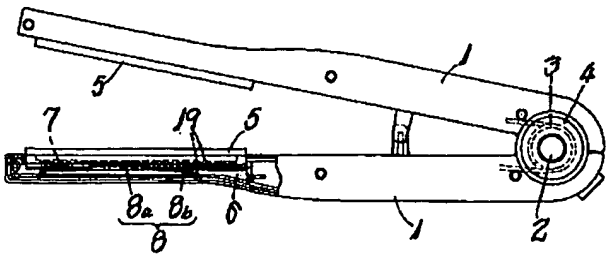
[Drawing 3]



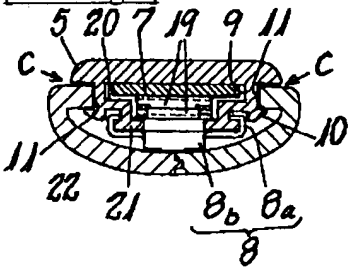
[Drawing 4]



[Drawing 6]



[Drawing 7]



[Drawing 5]